

**PTEIR for Carbon Sequestration and Fuel Reduction authorized by SB 862 (Greenhouse gases: emissions reduction) Background Document for the 082714 Board Meeting**

**BACKGROUND DOCUMENT**

The obligations of the Board, in statute **PRC 4598 et seq.**, are in **bold text** in this document and **highlighted** in the copy of excerpts from SB 862 that has been provided. Tied to these obligations is a menu of action items, which are in *italicized text*, embedded throughout the document, which once addressed will direct staff on how to proceed.

The Air Resources Board “Compliance Offset Protocol US Forest Projects” adopted on October 20, 2011 is referred to, in this document, as ARB Protocol. Landowners who request funding to cover the cost of PTEIR development may be the same landowners that enter the carbon market, which is one reason why the ARB Protocol has been relied on so heavily in the development of this background document. The other reason is to minimize duplicative efforts; the ARB Protocols represent the culmination of a large relevant effort.

*Does the Board have any objections to landowners who receive funding for PTEIR development entering into the carbon market, with the knowledge that taxpayer money is being used to facilitate a business venture, albeit a business venture that offers public benefit through the sequestering of carbon?*

If landowners are going to enter into the carbon market, it is critical that they develop the PTEIR to meet ARB Protocols and that they do it simultaneously, so that the PTEIR does not constrain the number of carbon credits that may be considered additional and therefore be able to be sold.

In the future, findings from the Board effort (required by AB 1504 and being undertaken by FRAP), to ensure that its rules and regulations that govern the harvesting of commercial forest tree species consider the capacity of forest resources to sequester carbon dioxide emissions sufficient to meet or exceed the state’s greenhouse gas reduction requirements for the forestry sector, may be able to be used to inform subsequent efforts.

Process Envisioned: The Board develops regulations, guidelines, or publications, which includes a proposal/application components and criteria for ranking. The Department works them into a Program, which, for SB862, has already started being developed. Project applicants submit proposals/applications. The Department Program personnel rank them. The highest ranking applications are awarded funding to prepare a PTEIR. The Department reports annually to the Board on the Program, in terms of the numbers of participants and metrics.

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**4598.9 Regulations, Guidelines or Publications**

**To carry out this article and to facilitate participation in the program authorized by this article, the board may promulgate regulations, guidelines, or publications the board deems appropriate. If the Board decides to promulgate regulations then they may be adopted as emergency regulations.**

The Board is not required to promulgate regulations and regulations may not be warranted for implementation of SB862 because key elements, specified in the statute, currently exist in the rules and other guidance documents:

- CCR § 1092 specifies the requirements of a PTEIR.
- The Board of Forestry has endorsed the “Guidance in the Preparation and Review of Program Timberland Environmental Impact Reports”, finalized in November 04, 2009.
- CCR § 1038(i) contains the definition of large old trees.
- CCR § 913.4 (c), 1038(c), 1038(i), 1052.4 points to what, in certain areas, constitutes effective fuel reduction treatments.
- CCR § 913.2 defines uneven aged management, which can be, with guidance, congruent with increasing biomass.

If the Board decides to make regulation then CFIP, Forest Legacy and VMP have rules after which this legislation may be patterned... CFIP Statute: PRC 4792 Regulations: CCR § 1525-1545.9, Forest Legacy Statute: PRC 12211 and 12240-12249.6 Regulations: CCR § 1570-1576, VMP Statute: PRC 4462 and 4475-4480 Regulations: CCR § 1560-1569.6.

*If the Board promulgates guidelines (like the CFIP Guidance Document), or a publication, does the Board want to make key provisions in the guidelines or publication be required to be incorporated into the PTEIR (and therefore become enforceable) which would have to be stipulated in the grant?*

*Does the Board want to promulgate regulations, guidelines or publications?* The only sentence that I was not sure how to interpret regarding this flexibility follows, “The bill would require the regulations to specify, among other things, criteria to determine that timberlands have demonstrated potential for increased carbon sequestration and fire protection benefits.”, which could be interpreted, if the Board made regulations then criteria would have to be specified. (see second yellow highlight in your copy)

The statute further states regulations, guidelines, or publications shall specify all of the following:

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**4598.9(a) Criteria to determine timberlands that have demonstrated potential for increased carbon sequestration and fire protection benefits and, therefore, the landowners of those lands may be eligible to enter into agreements or receive grant funds under Section 4598.5.**

The key points of 4598.5 follow:

- The Department may enter into agreements with third-party consultants to assist in the preparation of PTEIRs.
- Grant funds shall not to exceed the direct costs to the eligible landowners of preparing PTEIRs.
- Funds are appropriated from the Greenhouse Gas Reduction Fund. They amount to \$1.2 million dollars that was assigned to Local Assistance. These funds are available for encumbrance and expenditure until June 30, 2017 and for liquidation until June 30, 2020.
- These funds shall be used to facilitate the achievement of reductions of greenhouse gas emissions in this state consistent with California Global Warming Solutions Act of 2006.

The information provided in the proposal/application can be used to compare projects and rank them to realize the most cost-effective means to sequester carbon and achieve fire protection benefits. In addition to the information provided in the proposal/application, the following may be used to further qualify timberlands that have demonstrated potential for increased carbon sequestration and fire protection benefits.

Carbon Sequestration

CAL FIRE's resources can be used to identify areas where there are accumulated carbon stocks that can be protected by strategic fuel reduction treatments. The greater the accumulated carbon stock the greater the ranking. The composite forest carbon assets in 2010, 2020, 2050 and 2100 in Figure 3.7.2 on page 262 in the FRAP 2010 Assessment suggest that projects in certain areas would be poor candidates, on the other hand it can be used, to identify areas that have the potential for high carbon sequestration.

*Should landowners be given carbon sequestration points for avoided emissions, if they are taking harvested material to a biomass plant?* Per the ARB Protocols, Forest owners are not credited for avoided emissions from combusting biomass because biomass is immediately combusted and the carbon emitted to the atmosphere, the 100 year value is considered "0." However other entities, such as the Placer County Air Pollution Control District, are monetizing avoided emissions. They developed a framework to quantify air emissions reductions from the utilization of slash, which would have otherwise been open pile burned, as fuel in a biomass power cogeneration facility. These air emissions reductions were monetized and the money used to source more material and conduct more biomass energy projects.

Fire Protection Benefits

The State's existing resources (State and community Fire Plans) can be used to filter projects to award the best targeted location and the best suite of activities to protect existing carbon stocks, life, property and the environment. This filter would not exclude projects in remote locations, but a project would rank higher if it was in or adjacent to a WUI.

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Recently published findings in the paper entitled, “Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions?” by Campbell, Harmon and Mitchell conclude:

- Given a fuel treatment life expectancy of 10-25 years, less than 20% of treated areas will ever have the opportunity to affect fire behavior.
- For every unit of carbon saved from combustion three units are harvested as a result of fuel reduction treatments.

Despite these findings, there is justification within the “AB 1532, California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund” to implement fuel reduction treatments. The following language in HSC 39712(b)(6) supports fuel reduction treatments. “Moneys shall be used to facilitate the achievement of reductions of greenhouse gases” ... including to ... “Lessen the impacts and effects of climate change on the state's communities, economy, and environment. Drought, an effect of climate change, and the extreme fire hazard conditions that result is mitigated by fuel reduction treatments.”

Further, despite the suggested inverse relationship between carbon sequestration and fuel reduction treatments, the gap can be narrowed by strategic planning regarding placement and activities, which increase the effectiveness of fuel reduction treatments. What Campbell et al. is saying, in part, is that strategic fuel reduction treatments are better at reducing carbon emissions as compared to a broad brush approach.

Co-benefits of Increased Carbon Sequestration and Fuel Reduction

Co-benefits are additional benefits that are realized as a result of strategy implementation for a different purpose.

Increased carbon sequestration co-benefits may include enhanced wildlife habitat, increased biodiversity, reduced soil erosion, improved water quality, enhanced aesthetics and reduced energy usage.

Fuel reduction co-benefits may include the promotion of public safety and reduction of the potential loss of life and property, reduced suppression costs, reduced forest pests, invasive weed control, avoided emissions through the decrease in wildfire severity and acres burned and offsetting the use of fossil fuels if harvested material is fed to a biomass plant.

Further, thinning, associated with increasing the growth in a forest so it sequesters more carbon or thinning it as part of a fuel reduction treatment, can also be a part of an adaptation strategy to prepare for the effects of climate change.

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**4598.9(b) Guidelines further specifying the scope of projects for which agreements may be entered into or grants made pursuant to this article.**

*What is the expected product: PTEIR Maximize Deferral (Bronze), PTEIR Partial Deferral (Silver) or PTEIR Maximize Up-Front (Gold) (see Guidance in the Preparation and Review of Program Timberland Environmental Impact Reports November 04, 2009)?*

Programs that offer less than 100% cost coverage may have less participation. *Will 100% of the cost of the PTEIR be covered? Or will the cost be shared with the landowner (e.g. 100% with cap, or 75% cost-share)?* Note that costs after PTEIR development will be borne by the landowner (e.g. inventory requirements and maintenance of fuel reduction treatments). If costs become prohibitive the successful long-term utility of the PTEIR may be compromised and the landowner may abandon the PTEIR in lieu of another planning mechanism. Perhaps balance can be struck between complete cost coverage up front in exchange for a longer term commitment.

Any cost share would necessitate rules that would ensure that the project is completed and the public's money is well spent. *What would those rules look like?*

*Will the cost of the inventory be covered? Will the cost of supporting surveys be covered?*

*Will the Board set a minimum allowable confidence statistic standard (e.g. SE% of less than 20%) for the inventory that may or may not be funded?*

*There is an incongruity between the MSP lifespan of 100 years, also in ARB protocol, and the project/contract life (4598.6 "Subject to a contract signed by the landowner providing that the landowner agrees not to develop the parcel of timberland for uses incompatible with the PTEIR within 20 years following the execution of an agreement or the making of a grant pursuant to Section 4598.5")? Does this preclude requiring a longer project/contract life (such as 100 years to make it congruent with the long-term nature of carbon sequestration and LTSY)? If a longer project/contract life is allowed, does the Board want to make the project/contract life longer? Could the applicant propose a longer project/contract life? Per the PTEIR Guidance document, the purpose of a 100-year planning period is to estimate the long-term consequences of consistently applying existing management practice over time. Long Term Sustained Yield (LTSY), is defined as "the average annual growth sustainable by the inventory predicted at the end of a 100-year planning period" (CCR § 895.1). The Climate Action Reserve provides the following explanation of why 100 years is used, "it is the international standard for permanence and carbon emissions stay in the atmosphere 100 years, on average, so sequestration from an offset must be equivalent."*

*Will the landowner be contractually obligated to maintain fuel reduction treatments? What are the triggers that would require maintenance?*

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The ARB Protocol states, “At the time commercial harvesting is either planned or initiated within the Project Area, the Offset Project Operator or Authorized Project Designee must demonstrate that the Forest Owner(s) employs and demonstrates sustainable long-term harvesting practices on all of its forest landholdings, including the Project Area...” This would be to prevent Leakage, increased CO2 emissions caused by the shifting of harvesting activities from the Project Area to other forestlands *Should the landowner have to demonstrate that sustainable long-term harvesting practices are being employed on all of its forest landholdings, including the Project Area?*

Proposal/Application

**4598.9(c) Factors to be considered and information to be included in proposals submitted pursuant to Section 4598.8.**

**4598.9(d) A standard application form for proposals submitted pursuant to Section 4598.8.**

**From 4598.8: The proposal shall describe the management objectives and shall provide for all of the following: (1) Increased direct carbon sequestration through increased growth and inventory and long-term uneven-aged management of the timberlands. (2) Improved resistance to wildland fire. (3) Maintenance of large old trees across the watershed. (4) Optimized timber growth potential of the timberland consistent with maintaining carbon additionally over the baseline. (5) Measurable metrics demonstrating greenhouse gas reductions achieved by the long-term management to be analyzed in the PTEIR.**

The Department has started this effort to develop proposal guidance and a standard application in their Draft Procedural Guide for CAL FIRE Greenhouse Gas Reduction Fund Forest Management Projects Program Timberland Environmental Impact Report for Carbon Sequestration and Fuel Reduction, 2014.

*Should it be a requirement that the proposal/application be prepared by a RPF? The actions described in this document fall into the category of the practice of forestry as described in §753 of the Professional Foresters Law.*

*Following are components the Board may want to require inclusion of in the proposal/application. Does the Board concur with requiring the inclusion of these contents? If not, what would the Board include or exclude?*

**4598.8(3) Maintenance of large old trees across the watershed. (proposal)**

*Does the Board want to require retention of all large old trees, as defined in 14 CCR 1038(i), except where the conditions of 1038 (h) are met?*

**4598.8(1) Increased direct carbon sequestration through increased growth and inventory and long-term uneven-aged management of the timberlands. (proposal)**

The following three sources provide a list of management activities that increase carbon sequestration.

The ARB Protocol states eligible management activities may include, but are not limited to:

1. Increasing the overall age of the forest by increasing rotation ages.
2. Increasing the forest productivity by thinning, diseased, and suppressed trees.
3. Managing competing brush and short-lived forest species.
4. Increasing the stocking of trees on understocked areas.
5. Maintaining stocks at a high level.

Ryan in “A Synthesis of the Science on Forests and Carbon for U.S. Forests” suggest that there are three ways to increase (in the forest) carbon storage through active management:

1. Lengthen harvest intervals.
2. Reduce the amount of material removed.
3. Increase growth. (Staff comment: with the understanding that growth, once the site is at full capacity and the suppressed and intermediate trees have been removed, will decline as standing inventory increases.)

In Appendix C of the original A 32 Scoping Plan, reduction opportunities through forest management are captured in the following excerpt:

“There are significant opportunities to increase the carbon storage on managed forest lands over the next few decades by increasing forest growth through healthy and fully stocked stands that utilize site potential for growth while resisting or minimizing emissions from fire, insects and disease. Stands on timberlands statewide are growing at approximately 2.4 percent per year and this represents about 70 to 75 percent of their potential. Many of the timberland owners in California could make voluntary choices to manage their forestlands at a level above the minimums of the Forest Practice Rules.

Implementation approaches include:

1. Riparian Zone Extension: The voluntary extension of existing riparian protection zones currently required by the Forest Practice Rules.
2. Timber Stand Improvement: These activities include:
  - a. restoring conifer areas to full productivity by reduction of undesirable species and restocking with native species,
  - b. thinning stands to increase the growth rate for remaining trees,
  - c. optimizing rotation age from a carbon life cycle perspective,
  - d. planting additional trees where the existing stocks are not fully utilizing the biological potential of the site.”

**4598.8(4) Optimized timber growth potential of the timberland consistent with maintaining carbon additionally over the baseline. (proposal)**

The ARB Protocols have defined a method for determining baseline conditions above which carbon stocks can be considered additional. This is relevant because carbon additional over the baseline can be used as the definition for what constitutes carbon sequestration that deserves funding and it can be used as a quantifiable measure of success. Additionally, current stocks can be compared against the baseline within a project and/or between projects. Note: Landowners who have accumulated biomass are not punished. Projects with lower starting volumes that have much more potential to accumulate carbon may not accumulate it if this funding opportunity did not exist. Conversely, projects with higher starting volumes, where biomass has been allowed to accumulate may harvest it if this funding opportunity did not exist. Both can affect the same amount of additional carbon.

The baseline, per the ARB Protocols, is developed through a standardized 100-year modeling effort that includes legal requirements and regional estimates of “Common Practice”.

The standing live carbon stock baseline should represent a growth and harvesting regime that fulfills all legal requirements. Legal constraints include all laws, regulations, and legally-binding commitments applicable to the Project Area at the time of project commencement that could affect standing live carbon stocks. Legal constraints include: (1) Forest Practice Rules. (2) Other legally binding requirements affecting carbon stocks including, but not limited to, pre-existing Timber Harvest Plans, conservation easements, Habitat Conservation Plans, Safe Harbor Agreements, and deed restrictions.

Encumbrances excluded, by the ARB Protocol, from consideration in baseline determination are those that have been enacted in support of the forest project. To be in support of the forest project, an encumbrance or easement should reflect the intent of generating GHG reductions or removal enhancements.

The baseline may be further determined by using “Common Practice” (also called “Business As Usual”) factors, given the knowledge that starting from the lower legal limit does not reflect what may be happening on the ground. “Common Practice” is defined by Forest Inventory and Analysis (FIA) data on stocking levels.

The concept of a baseline is not unique to the ARB Protocol or carbon sequestration, the following would typically be included in a PTEIR (excerpted from the PTEIR Guidance document): “Quantify timber inventory baseline at sufficient resolution for making management decisions and for accurately projecting future estimates of growth, harvest and inventory levels over the planning horizon.”

*Does the Board want to require development of a baseline through a standardized 100-year modeling effort that includes legal requirements and regional estimates of “Common Practice”?*



**4598.8(5) Measurable metrics demonstrating greenhouse gas reductions achieved by the long-term management to be analyzed in the PTEIR. (proposal)**

Once the baseline has been established, inventory above it may be equated to greenhouse gas reductions.

*The ARB protocol provides the following minimum metric to demonstrate greenhouse gas reductions achieved by the long-term management, which the Board may want to consider adopting.*

At no time during the project life shall the project's inventory of standing live carbon stocks fall below the project's baseline standing live carbon stocks, or 20 percent less than the project's standing live carbon stocks at the project's initiation, whichever is higher. Over any consecutive 10-year period, average standing live carbon stocks must be maintained at or above the standing live carbon stocks at initiation of the project. (Staff Comment: If they do, this constitutes a reversal and must be mitigated.)

**4598.9(f) Metrics for evaluating the greenhouse gas reductions to be achieved by the long-term management of the timberlands pursuant to the PTEIR.**

*Following are potential metrics for evaluating the greenhouse gas reductions that the Board may wish to consider:*

1. Use ARB protocol to demonstrate an increase in the standing inventory over the project's baseline.
2. Set a growth rate expectation in conjunction with the site's annual rate of production and the aim of accumulating biomass.
3. Modify minimum stocking standards for uneven-aged management silviculture. More basal area equates to more live standing carbon.
4. Modify riparian zone width.

*How will hardwoods be measured?*

*What metrics does the Board want to use? If the Board chooses to adopt 2-4, how will the practice be equated to quantifiable greenhouse gas reductions?*

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**4598.9(d) A standard application form for proposals submitted pursuant to Section 4598.8. Carbon Sequestration (application)**

*Following are relevant portions, which have been modified, from the ARB Protocols that the Board may wish to consider requiring inclusion of in the application (generally) and in the PTEIR (specifically):*

1. Project name.
2. Project contact information, including name, phone number, address, and email.
3. Acres.
4. A description of the management activities that will lead to increased carbon stocks in the Project Area, compared to the baseline.
5. Identify all constraints that limit timber production.
6. List any encumbrances (e.g. conservation easements, Habitat Conservation Plans, Safe Harbor Agreements, and deed restrictions).
7. Establish stocking levels deemed sustainable for the desired management intensity.
8. Specify the action(s) that identify the project commencement date and project completion date.
9. Documentation of any and all legal constraints affecting forest management activities on the Project Area.
10. Map of the Project Area, including boundary, watercourses, site classes, etc.
11. General description of the forest conditions within the Project Area including species (tree) composition, age class distribution, management history, etc.
12. A description of the inventory methodology for each of the carbon pools included in the Project Area.
13. A description of the calculation methodologies for determining metric tons per acre for each of the carbon pools.
14. A description of the forest carbon inventory program, including a modeling plan and an inventory monitoring plan detailing the specific methods that will be used to update the project's forest carbon inventory. To maintain consistency, the same model version should be used.
15. A diagram of the final baseline incorporating all required carbon stocks.
16. A summary of the inventory of carbon stocks for each carbon pool.
17. A summary of inventory confidence statistics.
18. A description and estimate of the Forest Project's baseline onsite carbon stocks.
19. A determination of how the Forest Project's initial standing live carbon stocks compare to Common Practice.
20. A demonstration that the growth and harvesting regime assumed for the baseline is financially feasible.
21. Mitigations in case of reversal.
22. Projections of baseline and actual harvesting volumes from the Project Area over 100 years (PTEIR).

Per the ARB Protocols, landowners are required to provide all the information listed in the application, but preliminary, best estimates for questions related to the inventory of carbon stocks and baseline onsite carbon stocks may be submitted provided that the answers are based on the best available information. (Staff Comment: When completing the PTEIR, landowners would need to update the relevant information within the PTEIR.)



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**4598.9(g) The form and content of reports detailing greenhouse gas reductions as required by Section 4598.8. (monitoring)**

*Following are relevant portions, which have been modified, from the ARB Protocols that the Board may wish to consider requiring for inclusion in each Monitoring Report (Project Data Report), which may be submitted upon completion of each PTHP or, at the discretion of the Director, if no PTHP is implemented.*

1. Project name.
2. Project contact information, including name, phone number, address, and email
3. Reporting period.
4. A statement as to whether the Forest Project and associated Project Lands have met and been in compliance with all local, state, or federal regulatory requirements since approval of the PTEIR or implementation of the last PTHP.
5. A statement as to whether all the information submitted since the last Project Data Report is still accurate. If not provided updates to the relevant information.
6. An updated estimate of carbon stocks in all required carbon pools for the reporting period.
7. An explanation of any decrease over any 10-year consecutive period in the standing live carbon pool.
8. Any changes in the status of the Forest Owner including, the acquisition of new forest landholdings.
9. A description of progress regarding how the project is meeting the goal of long-term uneven-aged management (desired future forest condition).
10. An estimate of harvest volumes (including from fuel reduction treatments) and associated carbon in harvested wood products for the reporting period.
11. Estimated mill efficiency.
12. Baseline carbon stock estimates for all required carbon pools for the reporting period.
13. An estimate of Secondary Effects for the reporting period. Secondary Effects are unintended changes in carbon stocks, GHG emissions, or GHG removal enhancements caused by the Forest Project. Secondary effects may include increases in mobile combustion CO<sub>2</sub> emissions associated with site preparation, as well as increased CO<sub>2</sub> emissions caused by the shifting of harvesting activities from the Project Area to other forestlands, which is referred to as Leakage.
14. A calculation of total net GHG reductions and GHG removal enhancements for the reporting period.
15. If a reversal has occurred during the previous reporting period, the report must include a written description and explanation of the reversal and the mitigations employed to compensate for the reversal.
16. Monitor consistency based on the following inputs and outputs: (1) stand structure for partial-cut prescriptions, (2) volume control, and (3) area control, all at the resolution that the assessment is based. (From PTEIR Guidance Document)
17. Confirm monitoring schedule.

*Does the Board want to require RPF oversight of Monitoring?* The actions described in this document fall into the category of the practice of forestry as described in §753 of the Professional Foresters Law.

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Monitoring activities consist primarily of updating a project's forest carbon inventory. *Does the Board want to require monitoring for a period of 100 years following project commencement?*

The Project Data Report contents listed above are largely excerpted from the ARB Protocols; however, they are not as stringent. ARB requires a complete inventory of carbon stocks to be reported each year. This complete inventory must be maintained and updated throughout the Project Life. *Another thing to consider offering landowners is the option that if the ARB Protocols are met, the reporting required of it suffice.*

**4598.8(2) Improved resistance to wildland fire.** (proposal)

Fuel reduction treatments shall, at a minimum, comply with the rules set forth in CCR § 913.4 (c), 1038(c), 1038(i) and 1052.4.

Provide an analysis of timberland conditions and capabilities relative to fire resiliency, and describe the management objectives that provide for improved resistance to wildland fire, which shall include, but is not limited to, the following:

1. Reduction of surface or ground fuels
2. Reduction of canopy bulk density
3. Increased height to live crown (i.e. reduction of ladder fuels)
4. Increased stand QMD
5. Habitat heterogeneity
  - a. Late succession stands
  - b. Hardwood management
  - c. Conifer regeneration
  - d. Snags, downed LWD and den trees
6. Disposal of slash and non-merchantable material
  - a. Address potential insect hazard if proposing to leave material on-site
7. Location of treatments – will they be targeted to strategic locations, be distributed throughout the project area as operations occur, or a combination of these strategies?
8. Maintenance of improved conditions over time

*Regarding disposal of slash and non-merchantable material, will the Board require shipment of slash to biomass facility if there is a biomass facility within (between 25 and 50 miles) of the Project Area?*

*Will the Board allow burning as means to dispose of slash and non-merchantable material?* Note that the SEI report "Greenhouse gas and air pollutant emissions of alternatives for woody biomass" identifies only marginal (~15%) GHG (CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub>) differences between burning and on-site decomposition, although burning also released CO and PM<sub>2.5</sub>.

**4598.9(d) A standard application form for proposals submitted pursuant to Section 4598.8.**

**Fire Protection Benefits (application)**

1. Identify the number of acres in each fire hazard severity zone within the project area as identified by the latest FRAP maps.  
[http://www.fire.ca.gov/fire\\_prevention/fire\\_prevention\\_wildland\\_zones\\_maps.php](http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps.php)
2. Describe the current condition of the fuels in the project area including size, volume, and spatial arrangement (distribution and continuity). Include one of the following to support your narrative description of the existing fuel conditions.
  - a. Identify the best representative standard fire behavior fuel model that describes various representative fuel types within the project area. See the USFS general technical report RMRS-GTR-153 for guidance on standard fuel models.
  - b. Submit photos representing the various representative fuel types present within the project area.
  - c. Any other method that clearly conveys to the Director the current condition of fuels throughout the project area.
3. Identify assets at risk to wildland fires including, but not limited to, wildlife habitat, watershed resources (including domestic and municipal water supplies), adjacent homes or communities, critical infrastructure such as power lines and communication facilities, timber, range and forage, carbon stocks, recreation, aesthetics, and air quality.
4. Identify if any part of the project area is identified for fuel reduction in the local Cal Fire Unit Fire Plan, Community Wildfire Protection Plan, or a similar long term fire hazard reduction planning document.
5. Provide a map, or maps, of the project area identifying the following:
  - a. Topographic features in the project area that may enhance fire behavior. These include southerly aspects, steep slopes, narrow canyons, intersecting drainages, box canyons, and chimneys.
  - b. Public access within the project area or adjacent wildlands. Identify all public roadways, and any locations where significant numbers of people participate in activities such as fishing, hunting, camping and other forms of recreation.
  - c. Natural or artificial features within the project area that provide logical areas for fuel break development. These may include main roads, ridgetops and other topographic features, rock outcrops, wet meadows and other areas of less flammable vegetation.

**4598.9(e) Guidelines for evaluation and approval of proposals to enter into agreements or receive grant funds under Section 4598.5.**

The key points of 4598.5 follow:

- The Department may enter into agreements with third-party consultants to assist in the preparation of PTEIRs.
- Grant funds shall not to exceed the direct costs to the eligible landowners of preparing PTEIRs.
- Funds are appropriated from the Greenhouse Gas Reduction Fund. They amount to \$1.2 million dollars that was assigned to Local Assistance. These funds are available for encumbrance and expenditure until June 30, 2017 and for liquidation until June 30, 2020.
- These funds shall be used to facilitate the achievement of reductions of greenhouse gas emissions in this state consistent with California Global Warming Solutions Act of 2006.

The Department has started this effort for evaluation and approval of proposals/applications in their Draft Procedural Guide for CAL FIRE Greenhouse Gas Reduction Fund Forest Management Projects Program Timberland Environmental Impact Report for Carbon Sequestration and Fuel Reduction, 2014.

In addition to the information provided in the proposal/application, which can be used to compare projects and rank them to realize the most cost-effective means to sequester carbon and achieve fire protection benefits, guidelines for evaluation and approval of proposals may include developing ranking criteria, which may include the following:

1. The greater the accumulated carbon stock, the greater the ranking.
2. The greater the commitment to accumulating carbon, the greater the ranking.
3. If the area has a potential for high carbon sequestration, the greater the ranking.
4. The greater the contract life, the greater the ranking.
5. If harvested material is shipped to a biomass plant, the greater the ranking.
6. The closer the project is to a WUI or an accumulated carbon stock, the greater the ranking.
7. The more well targeted the fuel reduction treatment, the greater the ranking.
8. If the project is in an area of High Risk, per the Fire Hazard Severity Zones, the greater the ranking.
9. The greater the number of co-benefits, the greater the ranking

*Does the Board want to develop ranking criteria? Does the Board support the use of these criteria in ranking projects?*

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**4598.9(h) Any other matters as the board deems necessary for the effective administration of this article.**

*Will documents be made publically available?*

*The statute makes this effort watershed specific, is the reduction of greenhouse gases watershed specific?*

*This is a vehicle for an increase in PTEIR submissions. How should the Board work with the Department to facilitate the review of these PTEIR (e.g. Use "Guidance in the Preparation and Review of Program Timberland Environmental Impact Report 11/04/2009")?*

There are 4 PTEIRs that have been approved. Go to

[http://www.fire.ca.gov/resource\\_mgt/resource\\_mgt\\_EPRP\\_PTEIR.php](http://www.fire.ca.gov/resource_mgt/resource_mgt_EPRP_PTEIR.php)

PTEIR	Preparer	Year	Acreage	Cost	Notes
Meadow Vista	Doug Ferrier for the Placer Co. RCD	1999	7,000	\$30,000 to \$40,000	It was tiered to the Meadow Vista Community Plan, the EIR for which was done years earlier and a guess regarding its cost was between \$150,000 and \$1,000,000.
Hearst Forests	Jones and Stokes Associates	1998	60,801	unknown	
Weaverville	BBW	2004	4,275	unknown	
Mattole Forest Futures Project	BBW	2011	156,484	~\$1,000,000 (RG)	
MRC		2012	~200,000	unknown	



**PTEIR for Carbon Sequestration and Fuel Reduction authorized by SB 862 (Greenhouse gases: emissions reduction) Background Document for the 082714 Board Meeting**

Technical Documents

1. Excerpts of SB 862, Committee on Budget and Fiscal Review. Greenhouse gases: emissions reduction  
[http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140SB862&search\\_keywords](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB862&search_keywords)  
Notes: 4598.5 references 3712, 3716 and 3718, which reference Division 25.5 (commencing with Section 38500), which is the Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006.
2. Guidance in the Preparation and Review of Program Timberland Environmental Impact Reports, finalized in November 04, 2009  
[http://bofdata.fire.ca.gov/board\\_business/board\\_memorandums\\_and\\_guidance\\_documents/board\\_memorandums\\_and\\_guidance\\_documents/final\\_pteir\\_guidance\\_updated\\_072914\\_by\\_tb.pdf](http://bofdata.fire.ca.gov/board_business/board_memorandums_and_guidance_documents/board_memorandums_and_guidance_documents/final_pteir_guidance_updated_072914_by_tb.pdf)
3. Draft Procedural Guide for CAL FIRE Greenhouse Gas Reduction Fund Forest Management Projects Program Timberland Environmental Impact Report for Carbon Sequestration and Fuel Reduction, 2014.
4. The 2010 Forest and Range Assessment: Final Document. Chapter 3.7: Climate Change: Threats and Opportunities  
[http://frap.fire.ca.gov/data/assessment2010/pdfs/3.7climate\\_change.pdf](http://frap.fire.ca.gov/data/assessment2010/pdfs/3.7climate_change.pdf)
5. Compliance Offset Protocol US Forest Projects, Air Resources Board, October 20, 2011.  
<http://www.arb.ca.gov/cc/capandtrade/protocols/usforestprojects.htm>
6. AB 1532, John A. Pérez. California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund.  
[http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201120120AB1532&search\\_keywords=39712](http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201120120AB1532&search_keywords=39712)
7. Part of statute that supports fuel reduction treatments: HSC 39712.  
[http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=201120120AB1532&search\\_keywords=39712](http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201120120AB1532&search_keywords=39712)
8. Appendix C of the original A 32 Scoping Plan. Beginning page C-165.  
[http://www.arb.ca.gov/cc/scopingplan/document/appendices\\_volume1.pdf](http://www.arb.ca.gov/cc/scopingplan/document/appendices_volume1.pdf)
9. Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (USFS, 2005)  
[http://www.fs.fed.us/rm/pubs/rmrs\\_gtr153.pdf](http://www.fs.fed.us/rm/pubs/rmrs_gtr153.pdf)  
Contains pictures and descriptions of various fuel models

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10. Greenhouse gas and air pollutant emissions of alternatives for woody biomass residues (Olympic Region Clean Air Agency, 2010)  
<http://data.orcaa.org/reports/all-reports-entries/woody-biomass-emissions-study/>  
See Table 5 for comparison of GHG, CO<sub>2</sub> and PM<sub>2.5</sub> emissions from various disposal techniques.
11. Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions? Campbell, Harmon and Mitchell. 2011.  
<http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/26174/CampbellJohn.Forestry.CanFuelReductionTreatments.pdf?sequence=1>
12. A Synthesis of the Science on Forests and Carbon for U.S. Forests. Ryan, Michael G. et al. 2010.  
[http://www.fs.fed.us/rm/pubs\\_other/rmrs\\_2010\\_ryan\\_m002.pdf](http://www.fs.fed.us/rm/pubs_other/rmrs_2010_ryan_m002.pdf)
13. Placer County Biomass Waste for Energy Greenhouse Gas Offset Credit Project  
<http://www.placer.ca.gov/departments/air/greenhousegasoffsetproject>
14. California Fire Hazard Severity Zone Map Update Project  
[http://www.fire.ca.gov/fire\\_prevention/fire\\_prevention\\_wildland\\_zones\\_maps.php](http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps.php)